VOL. 11, No. 9 SEPTEMBER 1957

CHRONICLE OF THE WORLD HEALTH ORGANIZATION

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SCHEDULE OF MEETINGS

23-25 September	**Study Group on Chemotherapy and Chemoprophylaxis in Tuberculosis Control, Copenhagen**
23-27 September	**Regional Committee for the Eastern Mediterranean, Sub-Committee A, Alexandria**
23-28 September	**Expert Committee on Professional and Technical Education : Post-graduate Training in the Public Health Aspects of Atomic Energy, Geneva**
23 September-1 October	**Fourth Conference on Nutrition Problems in Latin America (FAO/WHO), Guatemala**
30 September-5 October	**Symposium on the Public Health Aspects of Chronic Diseases, Amsterdam**
2-8 October	**Expert Committee on the International Pharmacopoeia, Geneva**
7-12 October	**Study Group on Recommended Methods and Minimum Requirements on Biological Substances, Geneva**
7-12 October	**Joint FAO/WHO Expert Committee on Brucellosis, Lima**
13-26 October	**Rural Health Conference, New Delhi**
14-19 October	**Expert Committee on Addiction-Producing Drugs, Geneva**
15 October *	**Regional Committee for the Eastern Mediterranean, Sub-Committee B, Geneva**
16-29 October	**Study Group on Social and Preventive Medicine, Manila**
21-26 October	**Committee on International Quarantine, Geneva**
21-26 October	**Study Group on Mental Health Aspects of Peaceful Uses of Atomic Energy, Geneva**
22-29 October	**Joint FAO/WHO Expert Committee on Nutrition, Rome**
28 October-2 November	**Expert Committee on Training of Health Personnel in Health Education of the Public, Geneva**
4-9 November	**Study Group on Ataractic and Hallucinogenic Drugs in Psychiatry, Geneva**
4-15 November	**Seminar on the Nurse in the Psychiatric Team, Noordwijk**
6-13 November	**Conference on Public Aspects of Air Pollution, Milan**
18-23 November	**Expert Committee on Insecticides, Geneva**
18-23 November	**Expert Committee on Air Pollution, Geneva**
25-30 November	**Expert Committee on Professional and Technical Education : The Introduction of Radiation Medicine into the Undergraduate Medical Curriculum, Geneva**
25 November-4 December	**Seminar on Veterinary Public Health, Warsaw**
26 November	**Fifth Borneo Inter-territorial Malaria Conference, Labuan**

* Tentative date

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PRINTED IN SWITZERLAND

THE 1957 INFLUENZA EPIDEMIC

The influenza epidemic that started in Asia and has spread in a few months to both hemispheres has for several reasons put epidemiologists and health authorities on their mettle.

While remaining mild, it has a tendency to spread that is accounted for by the characteristics of the virus concerned, which differs considerably from those responsible for the epidemics of the last 25 years. Although it belongs to the A virus group, it is the most aberrant type reported since the discovery of the influenza virus in 1933. Antigenic variants of the A virus are known to have appeared during previous epidemics, but in recent years these variations have been fairly slight. Nevertheless, wide differences in antigenic constitution have occasionally been observed as, for instance, in 1946-47, with the appearance of the strains classified as A/FM1/47, first isolated in Australia (strain A/CAM/46). The deviations observed in the " new " virus —designated for the time being A/Asia/57— are more pronounced than any so far observed, even including these marked ones of 1946-47. Since most population groups have never been in contact with the virus, and consequently have no acquired immunity to it, the advance of the epidemic is meeting with little resistance.

Epidemiology

The first notifications, reporting the presence of numerous influenza cases, were sent to WHO from Singapore on 4 May 1957. However, as was afterwards discovered, the epidemic had already been spreading for several weeks. It started in the north of China at the beginning of the spring and penetrated into the interior of the country, where the virus was isolated for the first time at Peking, in March. Cases next appeared at Hong Kong in the middle of April. The gaps existing in what should be a world-wide system of epidemiological notification have become painfully apparent on this occasion.

During May, June and July, the epidemic spread very rapidly to the Philippines and Japan, South-East Asia, and the Western Pacific; then on to India, the Persian Gulf, Iran, Yemen, Aden, the Sudan, Egypt, Syria, Jordan and Australia. During the month of August, foci appeared in North, Central and South America, Europe and certain parts of Africa (see map facing p. 270). The epidemic spreads most of all in very dense communities, where contact between individuals is easy and frequent. Thus, in Japan and the Netherlands, for example, schools and camps have been particularly affected, the number of cases sometimes being as high as 60% of the total number of pupils. On board ship, too, series of cases have developed and have spread subsequently to ports and their hinterland. It would seem that these massive influxes of infected persons have played a bigger part in the spread of the infection than isolated cases transported by air.

In the northern hemisphere, influenza is not generally a summer disease, and this seems to be confirmed by the present epidemic since in recent months it has not spread in Europe or the USA to the extent which might have been feared. In tropical countries, on the other hand, there is no such marked seasonal periodicity; but in fact, very little is yet known concerning influenza epidemiology in these regions and there is no clear explanation why the infection has spread there and yet seems unable to spread in the northern summer.

In the southern hemisphere the influenza season begins as a rule in June, the highest incidence being reached during the following two or three (winter) months. This year, the virus has been carried south of the equator during the most favourable season but the epidemic has not spread as rapidly as might have been expected and the proportion of

people affected appears to be lower than in some tropical areas.

The disease appeared in Australia in May and was still spreading in June. Early in July it reached the Union of South Africa and Chile, and during August it was spreading in Argentina, Southern Brazil and New Zealand.

Clinical characteristics

This epidemic, which has remained mild, has caused very few deaths, and these have been due for the most part to bacterial pulmonary complications. In a few areas, the Philippines, for example, a fairly high death rate has been reported. It is difficult, however, in the absence of laboratory diagnoses for the majority of the cases, to distinguish between deaths due specifically to influenza and those caused by other diseases resembling influenza in certain symptoms.

The virus

The virus responsible for the epidemic is shown by the complement-fixation test to belong to the A virus group. However, it gives no cross reaction with the viruses of this group in the much more specific haem-agglutination-inhibition test. It is quite distinct from any of the viruses which have caused epidemics in the last 25 years, and shows the most important deviation in antigenic composition observed among viruses since 1933. Recently, Professor Mulder found in the Netherlands—and other workers in the United States of America and Australia have confirmed this—that some persons over 70 years of age possess antibodies against the " new " virus. It is not inconceivable that virus A/Asia/57 is related to the one which caused the 1889 pandemic. If this is confirmed, it may prove to be a fundamental advance in our understanding of the epidemiology of influenza.

Vaccination

Experiments in influenza vaccination have been carried out in certain communities for some twenty years past, using the allantoic fluid from the hen's egg infected with influenza virus and then inactivated with formol. While duly recognizing the variability in the results observed in certain cases, Dr T. Francis, jr, still felt able to affirm that " vaccination against influenza has been shown to be uniformly effective under a variety of conditions, when vaccines of proper constitution and potency are employed ".[1]

The decisive part played by the components of the vaccine and their antigenic power has been stressed by Dr von Magnus in the following words: " Studies of the antigenic variations among influenza viruses are of importance not only for a better understanding of the epidemiology of the disease, but also for problems associated with the procuring of an effective vaccine against it. It has been clearly established that a vaccine made from strains which differed considerably from the epidemic strain in question did not protect against the disease ".[2]

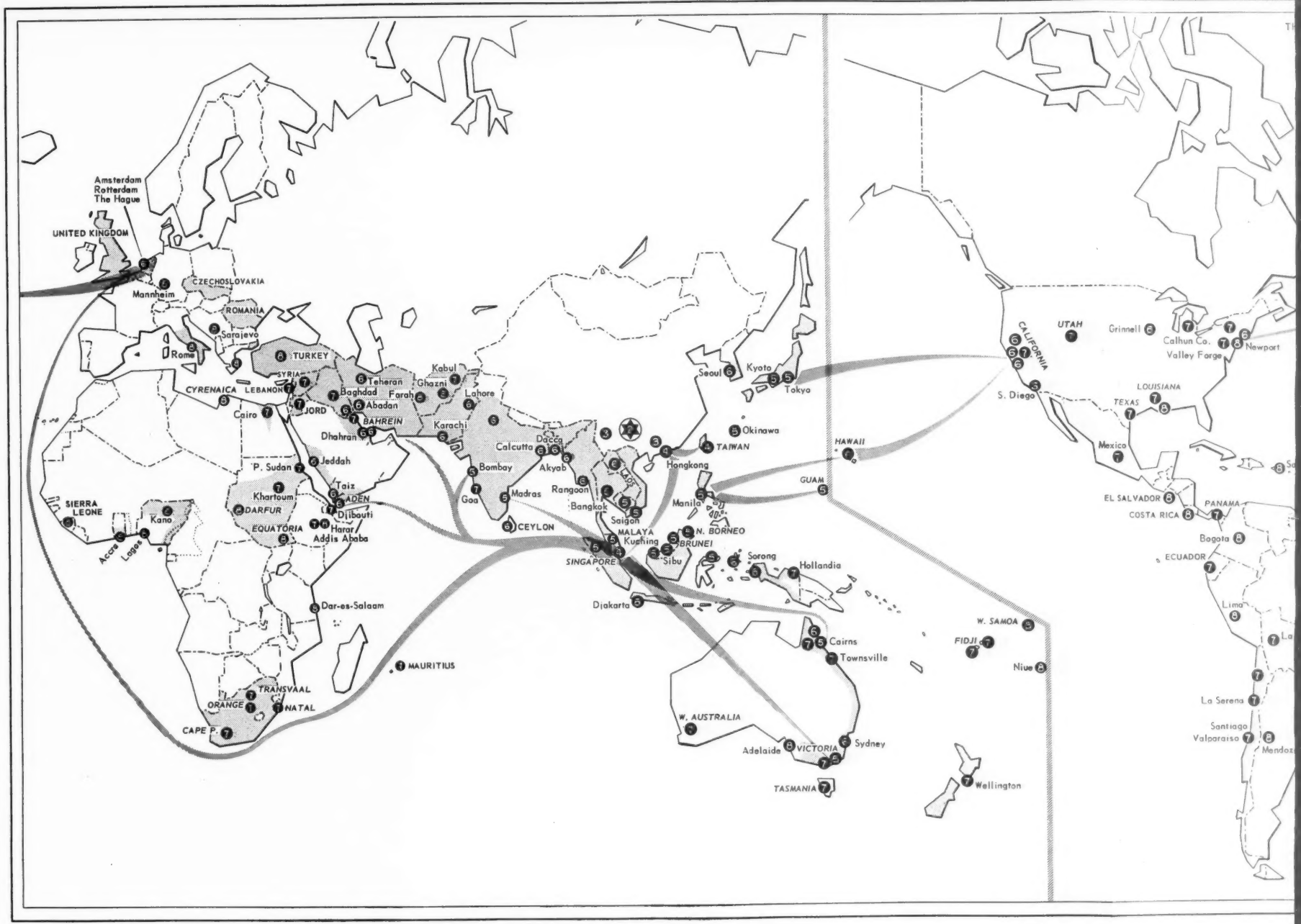
There can be no question of claiming to stop an epidemic by vaccinating against influenza. What is aimed at is the limitation of its effects by preventing high death rates and excessive absenteeism, such as would disorganize the public services and bring society to a standstill. Certain groups should be given priority. First, the medical services must be fit so that they may tend the sick; while there is no specific treatment for influenza itself, most deaths are caused by the bacterial complications of influenza—principally pneumonia—and the antibiotic treatment available today makes it possible, when it is given in time, to keep mortality down to a minimum. Next, the personnel essential for the proper running of the public services and basic industries must also be protected.

The first strains of virus A/Asia/57, as soon as isolation was achieved, were sent by the World Influenza Centre and the International Influenza Center for the Ame-

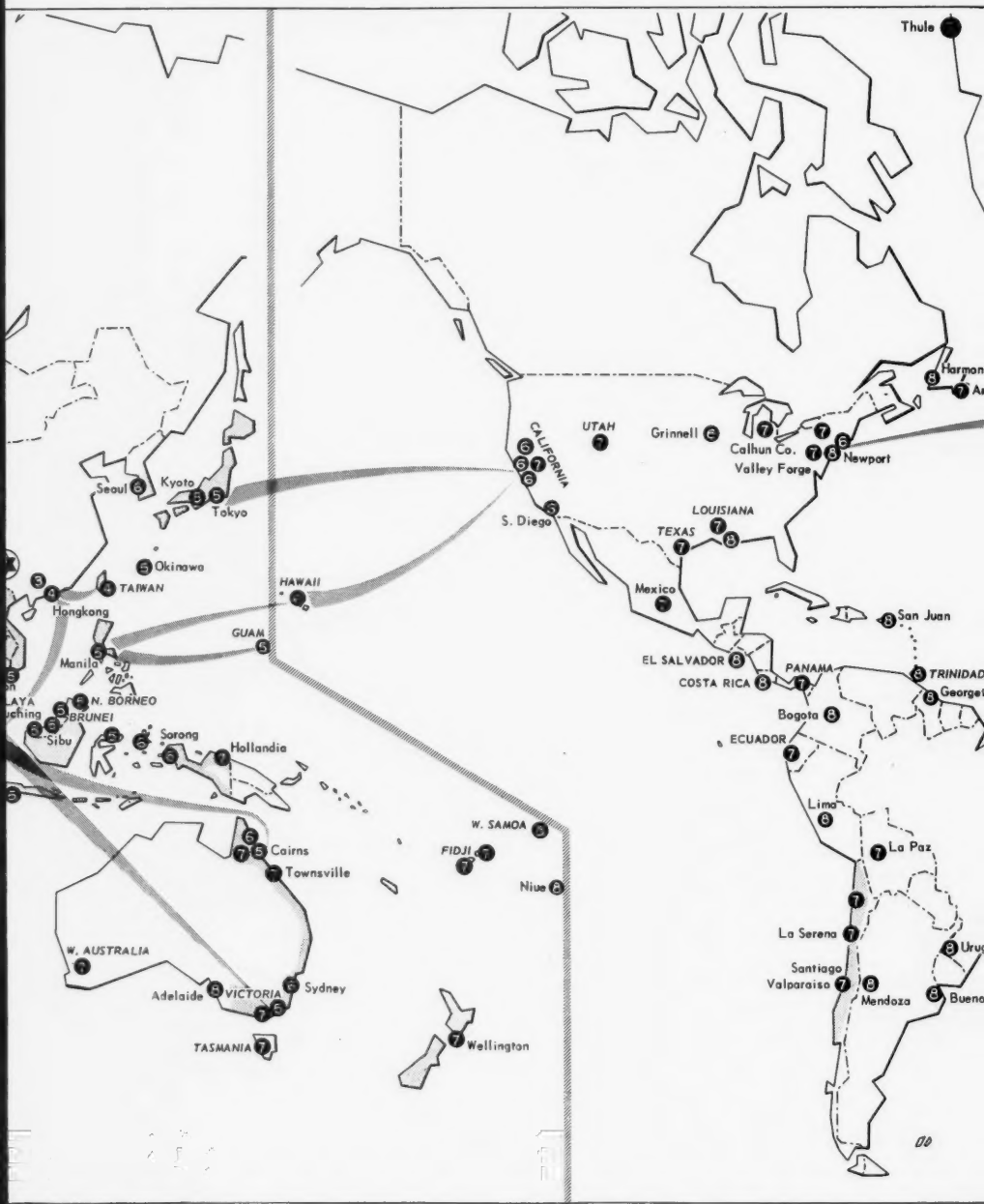
[1] Francis, T., jr (1954) *Vaccination against influenza.* In: *Influenza—a review of current research,* Geneva, p. 125 (*World Health Organization Monograph Series,* No. 20)

[2] Magnus, P. von (1954) *The influenza virus : its morphology, immunology and kinetics of multiplication.* In: *Influenza—a review of current research,* Geneva, p. 55 (*World Health Organization Monograph Series,* No. 20)

PROGRESS OF INFLUENZA EPIDEMIC FROM FEBRUARY TO 31 AUGUST 1957



The figures represent the months when the first cases appeared. *The shading shows the regions most affected.* *Probable origin of epidemic.*



The shading shows the regions most affected. *Probable origin of epidemic.*

Thule
Harmon
Argentia
Newport
San Juan
TRINIDAD
Georgetown
La Paz
Uruguaiana
Mendoza
Buenos Aires
WHO 7342

ricas to firms and laboratories preparing vaccines. Their task is to study the possibility of preparing a specific vaccine against this epidemic, so as to be able to meet possible requirements in the near future. Information reaching WHO regarding the suitability of the " new " virus for use as a vaccine is so far not very encouraging. According to the initial analyses carried out in manufacturing laboratories, national centres, and the World Influenza Centre, the virus has very little antigenic potency. Even a strain which appears to grow to a satisfactory concentration in eggs—as judged by the CCA (chicken-cell agglutination) titre—stimulates the formation of very little antihaemagglutinating antibody in man. This may be due in part to the fact that most people have had no previous experience of this virus and that the vaccine is therefore acting as a primary stimulus. If this is so, it seems unlikely that a single dose would be sufficient to produce satisfactory immunization in man. Vaccination by inactivated vaccines, such as those employed in recent years, has the drawback of requiring a considerable amount of culture material (up to one egg per vaccine dose or even more in the case of strains with little antigenic potency). An attempt is therefore being made to develop an attenuated live vaccine. The doses required would then be smaller, since the vaccine multiplies in the body. At an unofficial meeting of some eminent virologists, held at the suggestion of WHO following the recent International Poliomyelitis Conference at Geneva, a new vaccination procedure described by Soviet workers was discussed. With this procedure, the virus strain, after an initial egg passage, is cultured on human embryo tissue (where it undergoes a change in virulence), and then again cultured in the egg. The allantoic fluid, either liquid or dried, is sprayed into the nasal passages. In children this may give rise to a mild attack of influenza. The effectiveness of this method is still a matter of controversy.

The low antigenicity of the virus has also led to the failure so far of experiments in prophylaxis with hyperimmune serum. This is prepared by immunizing horses, and the serum is then sprayed into the nasal passages, as in the technique mentioned above. Injection of the Asian virus into the horse has brought about the formation of little or no antibody, certainly insufficient for effective protection.

Possible relationship between human influenza and swine influenza

Shortly after the influenza pandemic of 1918 a similar disease, called " swine influenza ", broke out among pigs in the Middle West of the United States of America. It now takes the form in a few States of winter epidemics of a mixed infection of virus and *Haemophilus suis*. In the inter-epidemic periods, the virus is not found in the tissues of the pigs. However, earthworms taken from infected pig farms seem to carry inapparent viruses, and these can develop in pigs eating the worms, into normal viruses capable of being isolated from the respiratory system. The question therefore arises whether the pigs are in fact the virus reservoirs, rather than being secondarily infected by the human virus, as some have maintained. The occasion of the present epidemic is to be used to attempt to find out whether animals actually play a part in influenza epidemiology. Sera taken from pigs, horses and other animals in regions so far unaffected by the epidemic are to be submitted to serodiagnostic tests, so that later on sera from the same animals can be studied and the antibodies compared, using the same tests, if the epidemic breaks out in these areas. In this connexion, WHO has appealed to the veterinary and public health services of a number of countries in different parts of the world to undertake this research in collaboration with the WHO influenza centres.

THE HOSPITAL OF THE FUTURE *

It has been said that a hospital should not be built to last for a longer period than 20 years, as by then the building and design will have become obsolete because of the new requirements created by the rapid advance of medical science. This concept has been shown to be especially true in recent years. It has been seen how sulfonamides and antibiotics have overthrown all the former complex ways of treating venereal diseases and the world is now witnessing the passing of the tuberculosis sanatorium era.

As some hospital facilities become outdated, however, new requirements come to the fore and there are ever-increasing needs to be met. Many hospitals throughout the world have been faced during the last few years with the need to install, say, an electronic microscope, and the advance of radiotherapy and radio-active tracers has compelled others to build up entirely new premises so protected as to avoid risks for the personnel.

But it is not only the progress in diagnostic and therapeutic procedures that is causing the hospital to change. Social needs and the more modern social approach to health and disease have also an impact on its evolution. The hospital, as the part of the medical and social organization of a country responsible for the health care of the population, is called on to adjust its machinery to the new developments in the social field. To-day, outpatient departments have become an indispensable part of the general hospital and physical medicine can no longer be ignored. The concept that the general hospital should be devoted to the care of acute diseases only is being revised and many hospital administrators have come to the conclusion that the chronically ill and the aged must also be catered for.

In other words, the hospital's role is now seen as enlarged to take in preventive medicine activities, and this concept has received the endorsement of the Tenth World Health Assembly, in its technical discussions held in May of this year.[1] Earlier, in 1956, an expert committee brought together by WHO for the purpose of considering the hospital's place in programmes of community health protection adopted the same view.[2]

To foresee what the hospital of the future will be, it is necessary first to analyse the trends in hospital care, the progress in administration and architecture, and the impact of social needs and economic development on the hospital set-up.

The trend in hospital care

The hospital has long ceased to be a charitable institution for the care of the indigent. Gone are the days when the well-to-do private physician was wont to spend part of his time caring for the destitute with no other reward than the practice and experience gained. Nor is nursing any longer the exclusive field of the religious orders. Nowadays, the hospital is a centre of technical knowledge and skills, responsible for the health care of a given population. It has to be equipped to make a diagnosis immediately, prescribe the right treatment, and institute rehabilitation measures, where required, with the least possible delay. Modern practice demands, too, that the patient be kept ambulatory, whenever possible, so as to save costly hospitalization.

This has been the trend until recently and the hospital has organized its facilities to meet these requirements. A large outpatient department is usually its front line. All the specialties and diagnostic and therapeutic facilities should be readily available

* Based on an address by Dr. A. L. Bravo, Chief, Section of Social and Occupational Health, WHO, to the 10th International Hospital Congress, held in Lisbon from 3 to 7 June 1957.

[1] For a summary report of these discussions, see *Chron. Wld Hlth Org.* 1957, **11**, 198.

[2] The expert committee's report has been published as *World Health Organization ; Technical Report Series*, No. 122.

in this department, so that as many ambulatory patients as possible may be treated and at the same time receive the benefits of the advances made in medical science. The department has to be equipped, too, for the thorough study of more complex cases that will need to be admitted to the wards for further examination or treatment. In short, a full comprehensive health care programme of the highest possible quality should be the aim of the out-patient department. It should be equipped and staffed to provide specialized health care beyond the capacity of the general practitioner or health centre in the area. In some cases, it may even reach out to the family in the home, through domiciliary health care services.

In its turn, in-patient care of a high scientific standard should also be readily available. Naturally, the extent to which the facilities for the achievement of this goal will be developed will depend on the size of the hospital and of the population to be served. The hospital's treatment should not stop at the acute phase of a disease; medical and social rehabilitation measures should also be instituted as early as possible.

Yet however perfect may be the care of the sick, this is not the full answer to the health care problems of the population. The full paraphernalia of preventive measures coming under public health is the essential complement. And the great majority of hospitals to-day are tending more and more to integrate preventive work among their activities. Maternity hospitals have realized that certain immunizations can and should be given to the newborn child in the first few days of his life. With the discovery of the miniature X-ray, the possibility of tuberculosis and lung cancer case-finding among all hospital admissions has become a reality. More and more, too, the opportunities for health education of patients and their families are being recognized and used by hospital nurses and medico-social workers.

But in some places the trend towards integrating preventive medicine in the hospital has gone even further. Probably the children's hospitals have led the way, by realizing that the only way to prevent much of infant illness is to keep an eye on the child through well-baby clinics, either attached to or working in close relationship with the hospital. Then, too, hospitals located in or near industrial areas have found that much of their day-to-day work is connected with industrial injuries or diseases. In many, therefore, preventive activities have been introduced, in co-operation with the industrial medical services. The hospital facilities, for instance, may be used for the pre-employment and periodic examination of workers and, on the laboratory side, for toxicological investigations. Sometimes, a physical medicine department is also organized, with the aim of preventing invalidism.

Architecture and administration

Parallel to the growing complexity of medical care, hospital architecture and administration have developed to the point of becoming specialties in their own right.

The hospital architect nowadays has to know not only the skills of his own profession but also the fundamentals of nursing and medical care. The hospital of the future brings to mind a modern mono-block building, ventilated and illuminated according to the various technical needs, and complete with air-conditioning (at least for some services), central supply of oxygen and compressed air, lifts and other easy transportation facilities, and kitchen, laundry and sanitary installations for a few thousand people.

The administration of a hospital of this kind includes the full range of problems involved in the administration of a small community, with those related to the medical services for the sick added. Such matters as budget and running expenses, record-keeping and statistics, supplies of all kinds, personnel management and human relations, and a variety of social problems, are all daily concerns of the hospital administrator. Hence, specialized training for the job is essential; often, to-day, this training is of graduate standard.

Economic burden on society

Obviously this highly specialized and elaborate machinery has become extremely costly and entails the employment of a number of professional people who are entitled to reasonable salaries in accordance with their skills. The unfortunate result of all this expansion is that hospital care has gone beyond the means of the ordinary family. And even social insurance institutions are to-day finding difficulties in meeting the hospital bill, while many governments are seriously concerned at its inflated total. Those responsible for planning the hospital of the future will have to try to find a reasonable compromise. In the meantime, this important factor of financing has to be borne in mind in any programme of international aid for hospital development.

The hospital in the social set-up

The place of the hospital in a society has to be focussed from two angles: it should, on the one hand, be an expression of the needs and wishes of the community and, on the other, an instrument to serve the society itself. Accordingly, a hospital should be planned with the active participation of the community, bearing in mind the incidence of disease and injuries, the birth and mortality rates, the standard of living, the habits and religious beliefs, and the housing conditions and transport facilities, of the area to be served.

The hospital need not necessarily be a beautiful modern building. A modest but comfortable emergency construction may equally well serve the purpose. But what is important is that the hospital should be adapted to the local conditions and should provide the best of comprehensive health care for the population.

A regional system is most likely to provide this adaptation of hospital facilities to local geography and population distribution. Special skills and equipment may be centralized in a regional hospital, at the disposal of the region as a whole, while a network of smaller intermediate and local hospitals can be responsible for the simpler day-to-day care in their respective districts. In many areas, the local hospital may act as a health centre, so contributing to the desirable integration of preventive and curative medicine.

Needs and resources at the national level

The importance of a thorough assessment of needs and resources in the early stages of planning a hospital programme cannot be over-emphasized. It is astonishing how many times it has been found that the number of hospital beds available in a country was unknown or how often large capital investments have been made haphazardly.

The number of hospital beds required varies widely from one country to another, depending largely on the incidence of disease and injury. Other factors to be taken into account include the availability of trained staff and of funds, for it would obviously be unrealistic to launch an ambitious construction programme without these important elements to hand.

Many attempts have been made to establish a bed-population ratio for universal application but the wide variation in needs and resources makes it necessary, in practice, to determine this locally for each particular case. Whilst many countries are aiming at a ratio of 7 or even 10 beds per thousand of the population, others would be happy if they could achieve the modest goal of one per thousand.

Whatever the case may be, however, a fairly accurate survey of needs and resources is a pre-requisite to the laying of future plans. In general, countries are equipped to carry out this preliminary work for themselves, but in certain cases it may have to be undertaken by foreign experts provided through international co-operation programmes.[3]

[3] Hospital surveys have been carried out, under WHO sponsorship, in Ceylon (1951), Egypt (1952) and Turkey (1956). In Japan, a WHO expert has helped to analyse the results of a survey made by the Institute of Hospital Administration, Tokyo (1956). Plans are under way to give help in a survey of the hospitals in Burma. The Saskatchewan (Canada) Hospital Survey and Master Plan (1951) constitutes a typical example of one carried out by national authorities without foreign aid. The ultimate goal of all these surveys has been either to develop a long-term programme of hospital planning and organization or, as in Japan and Saskatchewan, to reorganize an old hospital pattern.

As regards staffing, in the great majority of cases where international help is needed to set going a hospital programme, there is usually a complete lack of trained persons on the spot. This is by no means a new situation. Florence Nightingale and other pioneers of hospital care also had to start from scratch.

In the first instance, every effort should be made to gather a nucleus of staff from among national resources and talents. This will serve as the basis for further development later on, when a proper training programme can be launched in conjunction with the construction programme. And international help is usually available to fill the initial gap and help in the training programme. An account of what can be done in this way appears further on.

By and large, buildings and equipment represent the main problem for most countries.[4] The initial capital outlay for building a hospital is great and local governments often are faced with the alternative of giving the people a hospital for the sick or housing for the healthy. Building materials and manpower may also be scarce, thus further limiting the country's building capacity. And again, hospital equipment is costly and in many cases may have to be imported at the expense of a substantial proportion of the available foreign currency. In such circumstances, it is hardly surprising that the priority given to hospital construction may be very low.

One national resource that should not be underestimated does, however, exist, namely, the power of the people themselves to contribute. Where a local community feels that a hospital is one of its basic needs, its individual members are generally prepared to raise the necessary funds, however poor they may be, provided a well-thought-out technical plan is put before them. The obvious disadvantage to this direct participation is that the community wants to have a voice in such matters as choice of site, kind of services to be provided, and so on, without taking the broad view of the hospital's place within the scheme as a whole. It is in such circumstances that international assistance can be of great help, by offering the independent technical advice of an outside expert, who is not involved in local interests and politics.

Coming to planning itself, this is a stage the importance of which cannot be overemphasized. The problems of the choice of site and the size of building, the number of beds and the specialties to be provided, are only the fundamentals and the very beginning of the planning process. Yet the decisions on these points will govern the scope of future activities and a mistake in the early stages may well distort the whole pattern for the future.

What already exists in the way of hospitals obviously has to be taken into account. Where the shortage of beds is great, the problem will have to be tackled on an emergency basis and hospital accommodation built up as fast and as cheaply as possible. In special cases, transportable hospital units may have to be used, even though this cannot be regarded as an adequate permanent solution.

To ensure objective appraisal of over-all needs, a national planning commission may be found of great help. This body should be a technical advisory one, composed of physicians, architects, engineers, nurses and administrators. Much of its work will necessarily be based on the findings of the pre-planning hospital survey, if indeed the organization of this is not its first task.

International co-operation

The best approach for an international organization in giving help in this work is to provide a hospital planning team, to work on the spot and give expert advice to the national authorities. In this way, a hospital system ideally suited to the country may eventually be developed by regular stages. The basis of a team of this kind is usually a physician experienced in hospital planning and administration and an architect well

[4] For further information on this subject see: R. J. Bridgman (1955) *The rural hospital : its structure and organization*, Geneva (*World Health Organization : Monograph Series*, No. 21).

acquainted with the problems of hospital architecture. Other members may be added as circumstances warrant: nurse administrator, medical records librarian, supplies officer, pharmacist, hospital administrator, and so on. It should be emphasized here that the function of the team is confined to giving technical advice. The administrative responsibility rests with the national authorities.

Two principles that are now generally accepted, irrespective of local conditions, are: (1) that the system should be a harmonious regional one, covering urban and rural areas alike and having excellent liaison among all its component parts; (2) that comprehensive out-patient departments should be attached to the hospitals, capable of dealing with as many patients as possible on an ambulatory basis and thus reserving the expensive privilege of hospitalization to essential cases.

A good pattern for this type of work has already been set by a planning team sent by WHO to Turkey in 1956. This team, composed of an architect, an engineer and a medical hospital administrator, had the task of advising the competent authorities on the planning, designing and equipping of hospitals for the expanding programme of the workmen's insurance scheme. Similar assistance, in a lower degree, has been given to Cambodia, Colombia, Costa-Rica, Finland, Hong Kong, Liberia, Luxembourg, Philippines, Samoa, Sarawak, Surinam and Viet-Nam.

Another domain in which international co-operation can usefully help is in the training of staff of all categories. It is still a moot point whether the best course is to send local personnel abroad for training, through a fellowships programme, or to provide foreign experts to give the training on the spot. Valid arguments exist on both sides. The really hard problem, however, arises when not even a nucleus of local staff exists—and this is by no means rare. The best answer in such cases is probably a combined programme, using both methods, and this is the course usually chosen by WHO.[5]

The foreign expert may be sent into the country for the purpose of organizing a first elementary course in any of the specialties of hospital work: administration, record-keeping, nursing administration, physiotherapy, occupational therapy, auxiliary nursing, and so on. He should stay long enough to gain an understanding of the local character and ways and to get the course running properly. He may also be called on to select intelligent trainees for further instruction abroad, in preparation for taking over the work. A reasonable period of time for projects of this kind is from two to three years, depending on the circumstances.

It has to be borne in mind that, in the long run, it is the country itself that is responsible for the permanent running of services. Foreign aid is therefore always of a temporary nature and is, within reasonable technical limits, subject to national wishes. For this reason, a fixed pattern cannot be offered for regular use in international work of this kind. General lines of action only can be indicated and these have to be adapted to local conditions in every case.

At a more advanced stage of development, an institute of hospital administration may be set up with outside help. The main functions of these institutes include the training of personnel, research on local problems and provision of advisory services to local institutions.

International assistance is by no means confined to the types of help mentioned above. Some bodies even give material aid by way of supplies and equipment. This kind of help is very acceptable to countries already having the organized services and

[5] An example of where this has been successfully done is the School of Hospital Administration attached to the Penang General Hospital in Malaya. The course in hospital administration that is to be organized within the High Institute of Public Health in Alexandria, Egypt, is to receive similar help from WHO. In all, WHO has awarded some 100 fellowships in hospital administration to trainees drawn from 42 countries.

Incidentally, the biggest international effort in hospital administration training ever undertaken was one that was co-sponsored by WHO, through its Regional Office for the Americas (Pan American Sanitary Bureau). This was the Third International Seminar on Hospital Administration, held in Rio de Janeiro, Brazil, in 1950. A faculty of 45 experts drawn from the Americas, together with over 200 students, met for a two-week period during which more than 60 lectures were given and all aspects of hospital administration discussed.

It is noteworthy, too, that most WHO projects, irrespective of purpose, include provision for the training of local staff to carry on the work once the international help is withdrawn.

staff but lacking the funds to equip the existing premises or buy the supplies they need. WHO is not itself a supply organization, yet it has a definite interest in the organization of supply offices for the management of medical stores and has given assistance for this purpose, notably to Ceylon and Burma.

Another often neglected item in respect of which international co-operation can do much is hospital records. A good medical records service is the basis for the production of good hospital statistics and these, in turn, have endless possibilities for research and epidemiological work. Trained local staff are rarely available for this work in countries engaged in setting up hospitals. There are accordingly two outlets for international aid: the training of staff and the organization of records services. Again, WHO takes a keen interest and has already provided help on these lines to several countries. Peru (1952) and the Federation of Malaya (1957) have benefited from WHO projects covering both objectives, and Singapore (1956) has been given aid in organizing hospital records services. WHO looks on this work as likely to help on the further integration of both preventive and curative services in the hospital, especially when it can be arranged that the wards and the outpatient department use common medical records.

Yellow fever

..." this monograph * is a definitive presentation of the general and technical aspects of yellow-fever vaccination. It should interest the worker and teacher in microbiology and everyone concerned with problems of local and international public health."

John P. Fox in *Science*, 1956, **124**, 371

* *Yellow Fever Vaccination* (*World Health Organization: Monograph Series*, No. 30). Price: £1 5s., $5.00, or Sw. fr. 15.— (clothbound).

Serology of syphilis

..." No comparable authoritative publication on the serology of syphilis has ever been published and this document * is recommended to all who are concerned with this subject."

T. E. Osmond in *Bulletin of Hygiene*, 1956, **31**, 905

* *Bulletin of the World Health Organization*, 1956, **14**, 187-352

THE ERADICATION OF YAWS AND PINTA IN THE AMERICAS

The progress made in the control of yaws has recently been described in the Chronicle of the World Health Organization.[1] In the May number of the *Bulletin of the Pan American Sanitary Bureau*, data are published on the geographical distribution and the status of the operations against yaws and pinta (*mal del pinto*) in the Americas. These data were communicated to the Seminar on Treponematoses Eradication (excluding syphilis), held at Port-au-Prince, Haiti, from 21 to 27 October 1956, and summarized in its final report.[2]

The geographical distribution of yaws and pinta in the Americas and the present status of these diseases in the region, according to the above-mentioned information, may be summarized as follows:

Mexico

Mexico	Yaws does not exist; pinta is prevalent in certain areas.

Central America and Panama

British Honduras	Yaws apparently does not exist.
El Salvador	
Honduras	
Costa Rica	Sporadic cases of yaws only are reported.
Guatemala	
Nicaragua	
Panama	There are isolated yaws foci in three provinces.

Caribbean Region

Bahamas	No yaws cases have been reported in recent years.
Barbados	
Montserrat	
Netherlands Antilles	
Puerto Rico	
U.S. Virgin Islands	
Grenada	Until recently yaws was hyperendemic in certain districts of these islands. Mass treatment campaigns started in 1956 covered approximately 95% of the population. The second stage of these campaigns has revealed a very low percentage of active cases.
St. Kitts	
St. Vincent	
Antigua	Between 1953 and 1955 a few cases only were reported each year. Mass yaws programmes are not being conducted.
British Virgin Islands	A mass treatment campaign in 1956 revealed very few cases.
Cuba	Prevalence of yaws is limited to the Province of Oriente, where a few foci apparently exist. No control programme is being undertaken at the present time.
Dominica	In 1955, 1031 new yaws cases were reported, representing an incidence of 17.5 per thousand inhabitants. An eradication campaign is planned to start in 1957.
Dominican Republic	A yaws eradication campaign was started in 1953.
French Antilles	Annual incidence has declined steadily in the past ten years to the present very low figure of approximately 0.1 per thousand in Martinique and 0.2 per thousand in Guadeloupe.
Haiti	The yaws eradication campaign is continuing.
Jamaica	Systematic yaws control measures have been carried out in the past years, but scattered foci continue to be found in a number of parishes.

[1] *Chron. Wld Hlth Org.* 1957, **11**, 70

[2] The seminar reviewed in detail the general aspects of treponematosis eradication programmes, including methods, training of personnel, programme administration, maps and statistics services, logistics, therapeutics, laboratory services, health education, supervision, evaluation and evaluation surveys, as well as the inclusion in yaws campaigns of other health activities.

Among the various recommendations made is one to the effect that, since pinta is an important public health problem in certain countries, the recommendations on yaws should also be applied as regards this disease. The seminar noted with great satisfaction the consideration given to and the intense interest shown in the questions of survey evaluation and integration of programmes; it recommended that special attention should continue to be given to these items in relation to yaws eradication. The reader is referred to the *Bulletin of the Pan American Sanitary Bureau* for a detailed summary of the report and of the papers presented to the seminar for discussion.

St. Lucia	A recent survey revealed an incidence of 21 per thousand; an eradication campaign is being planned.
Trinidad and Tobago	Scattered foci exist in certain areas but prevalence is low. An eradication campaign is planned to start in 1957.
	SOUTH AMERICA
Bolivia	Yaws is limited to some foci in the Department of La Paz.
Brazil	The yaws control service reports the presence of endemic and hyperendemic yaws in at least 235 municipalities with an estimated prevalence of 60 per thousand in a population of almost 9 million.
British Guiana	An eradication campaign is being undertaken in the County of Essequibo, the sole remaining endemic area.
Colombia	The endemic area contains an estimated population of 500 000. A campaign begun in 1950 has considerably reduced the prevalence, which at present is estimated at 3.6 per thousand.
Ecuador	In the coastal province of Esmeraldas (population 100 000) 541 yaws cases were treated between December 1954 and April 1956. In the eastern region (population 50 000), prevalence is estimated at 80 per thousand. Nine house-to-house coverages have been carried out in the coastal area alone.
French Guiana	8 cases per year are being reported.
Peru	Yaws is limited to the tropical jungle areas. In 1955, 555 cases were notified.
Surinam	No information available.
Venezuela	A systematic yaws campaign has been in operation since 1946. The endemic area has an estimated population of 1 000 000; the annual incidence has declined steadily to a rather low figure at present.

Review of WHO Publications

Bulletin of the World Health Organization, 1957, Volume 16, Number 2 (pages 247-480).

This number includes articles on epidemiology of variola and murine typhus, cancer mortality in various countries, chemotherapy in lymphogranuloma venereum, the International Standard for Hyaluronidase, and a ninth study on cholera, as well as notes on a number of other subjects.

F. O. MacCallum & J. R. McDonald give the results of an investigation made in England following outbreaks of smallpox in the cotton-spinning industry due to virus imported in bales of raw cotton. They come to the conclusion that if cotton is stored for six months or more at a temperature of 30°C to 40°C before shipment, the risk of introducing the virus into countries which are free from the infection is very slight. On the other hand, if the cotton becomes contaminated in regions with an average temperature of 20°C to 25°C or is kept in such regions while containing virulent scabs, infective particles may survive for several months.

An attempt at deratting by means of anticoagulants and at disinsectization by means of DDT, made in Georgia in the United States and described by C. O. Mohr & W. W. Smith, gives rise to the hope that it may be possible to eradicate murine typhus from the rural zones in which it is endemic. It is probable that similar methods could be used against plague.

A J. Phillips & M. Owchar analyse the statistics of mortality from malignant neoplasms and show that, in the eight countries studied, the position varies considerably. For example, in Japan there is a particularly high mortality rate from tumours of the digestive

system but a very low rate from tumours of the genital and urinary systems. The mortality rate from breast tumours is also very low among the Japanese, as is that from tumours of the uterus in Israel.

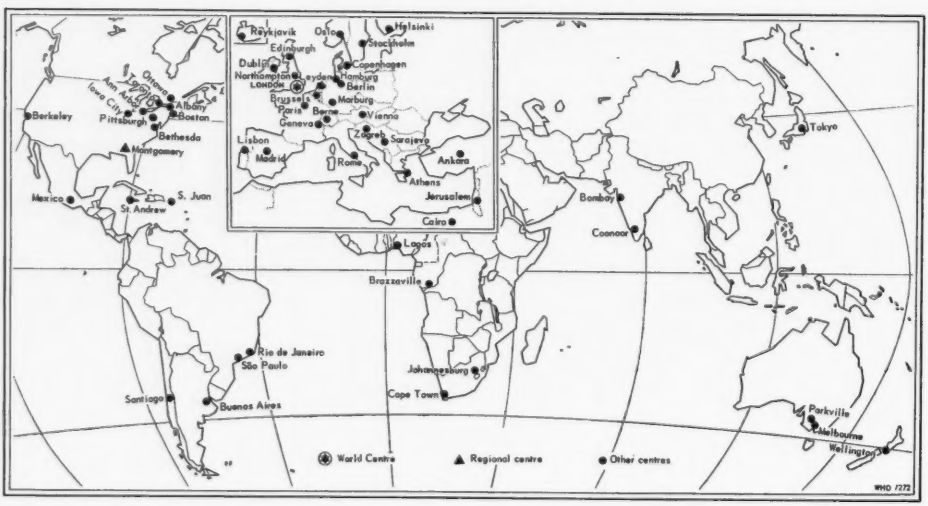
Chemotherapy in lymphogranuloma venereum has long been a controversial subject. A. B. Greaves, M. R. Hilleman, S. R. Taggart, A. B. Bankhead & M. Feld give an account of a comparative study, carried out with the aid of a control group and indicating that equally good results are obtained by the use either of the antibiotics or of sulfonamides.

J. H. Humphrey summarizes the collaborative tests that have led to the establishment of the International Standard for Hyaluronidase, and indicates what precautions should be taken in the biological assay of this substance.

The ninth study on cholera, by R. Pollitzer, deals with the symptomatology, diagnosis, prognosis and treatment of this disease.

The eleven notes which complete the number cover such subjects as the march of jungle yellow fever towards the northwest regions of Central America (J. Boshell); techniques for the collection, handling and breeding of rodent fleas (M. Baltazard & M. Eftekhari); effects of temperature on survival of variola virus in human material (F. O. MacCallum & J. R. McDonald); chemotherapy of brucellosis (M. Ruiz Castañeda); the ABR-test with stained antigens applied to buffalo's milk, for the diagnosis of brucellosis (M. R. Shalash); ventilated cabinets in a tuberculosis laboratory (A. Lind); treatment of early syphilis with a single injection of PAM (S. E. Landy, C. R. Rein, E. W. Thomas & L. C. Kelcec); cytogenetics of *Anopheles gambiae* (M. Holstein); concept of kwashiorkor from a public health point of view (J. C. Waterlow & N. S. Scrimshaw); evolution of the environmental sanitation programme in Brazil (W. R. R. Sanches); seasonal variations in susceptibility to DDT of *Anopheles maculipennis* in Iran (J. de Zulueta, P. Jolivet, K. Thymakis & P. Caprari).

WHO INFLUENZA CENTRES



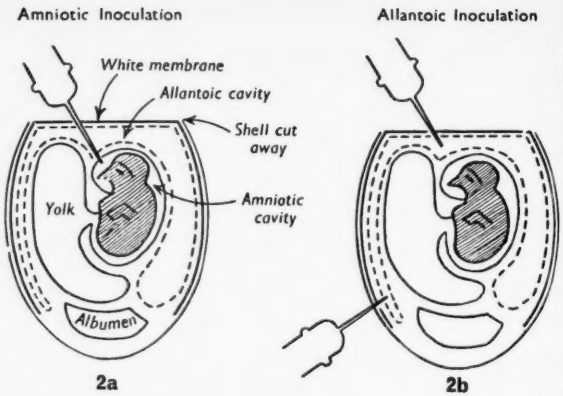
LABORATORY ASPECTS *of* INFLUENZA CONTROL

In the space of a few months, the influenza virus can spread all over the world, and, even though causing but a mild infection, it can disorganize for weeks at a time the social and economic life of the countries through which it passes. The highly infectious nature of the disease and the speed with which it spreads have caused it to be said that: "When influenza is epidemic one tends to think—not, whether one will get it, but when will one get it?" [1]

A number of factors—the universal nature of the disease, the pandemic form it has assumed on several occasions during the last seventy years, its vagaries, due in part to the variability of the virus, the ephemeral immunity it leaves behind it—have called for concerted action since every country of the world is threatened. In 1948, the World Influenza Centre was established in London, under the auspices of WHO; in the years that have followed, a network of national centres, spread all over the world, has been developed (see map, p. 280). In addition, the epidemiological services of WHO collect and transmit information on the appearance and spread of epidemics, their seriousness, the number of cases occurring, etc. This work will be fully effective only when every country collaborates in it. The national centres, the International Influenza Center for the Americas and the World Centre receive pathological matter—or the first egg-passages of virus—from the various areas where an epidemic is raging. The virus is then isolated, identified by serological methods, compared with viruses isolated in

1

previous years and its virulence and antigenicity are assessed. As soon as isolation is achieved, the viruses are sent to specialized firms and laboratories so that the possibility of preparing an effective vaccine from the virus actually causing the epidemic can be examined, since it has been found that one variant of the virus does not necessarily confer immunity against another. The influenza virus has not the stability of, for example, the smallpox virus. It is more malleable, more protean than most pathogens, so that



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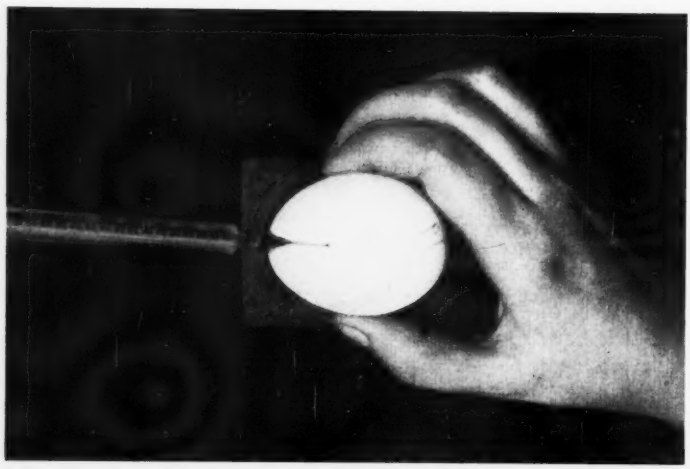

4

ulation

vaccination raises many problems. The influenza virus, as it appears when fixed on red-cell-ghost (**1**), takes the form of a spherical particle—with a diameter of about 1/10000 mm—or of a filament; the "new" virus (A/Asia/57) is frequently found in the latter form. Like other viruses, the influenza virus will not multiply on artificial culture media. The most convenient culture method is inoculation into the fertilized hen's egg, on the thirteenth day of incubation. To isolate the virus for study, intra-amniotic inoculation is employed (**2a**); in order to culture it for vaccine preparation it is inoculated by the allantoic route (**2b**). In principle, the intra-allantoic method consists in introducing the needle of a syringe containing the virus suspension through the shell (**3**) at a point 1 cm from the air sac, to a depth of 12-14 mm. After four days' incubation the shell is opened at the air sac.

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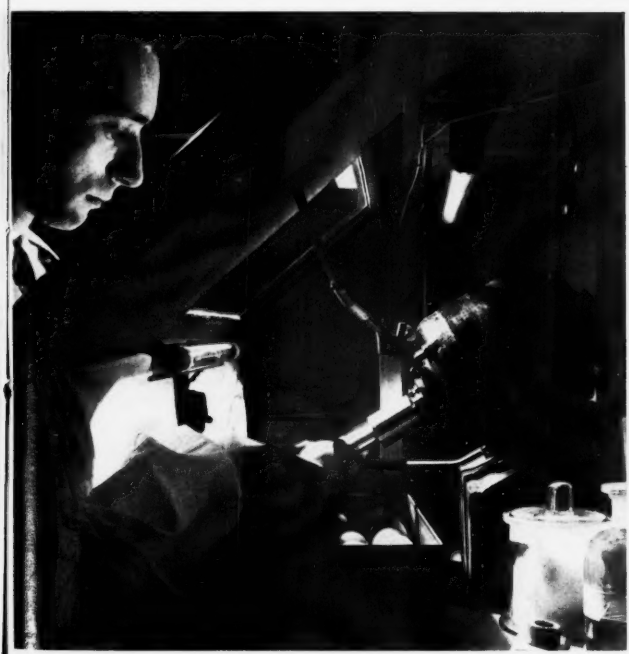

6 The shell membrane is carefully removed and the chorio-allantoic membrane drawn aside without injuring the blood vessels (**4**). The allantoic fluid, which will serve as vaccine, is removed by aspiration. The virus is then inactivated with formol. In the case of semi-industrial preparation, the infected eggs are placed in the incubator in superposed trays (**5**); opening of the eggs is done by dental drill (**6**). Extraction of the allantoic fluid is done in an aseptic compartment into which the operator inserts his hands only (**7**).

If it is to be effective, the vaccine must contain a suitable amount of virus antigen. In the case of the inactivated vaccine, the quantities necessary are relatively high; as much as the whole culture from one egg is required for a single

dose of vaccine when the antigenicity of the strain is low. The vaccine can be concentrated by various methods. Beyond a certain point, however, the serological response does not increase in proportion to the vaccine concentration. Furthermore, very high concentrations are not advisable, since they may give rise to local reactions (erythema, oedema) or fever, or, indeed, to reactions of the anaphylactic type in subjects sensitized to egg protein.

Efforts to develop a vaccine for the purpose of warding off an epidemic like the one that is spreading so steadily all over the world this summer must be collective. A single country cannot hope to protect itself against an impending epidemic without knowing the nature of the virus to be combated. What the network of WHO influenza centres offers every country is the fruit

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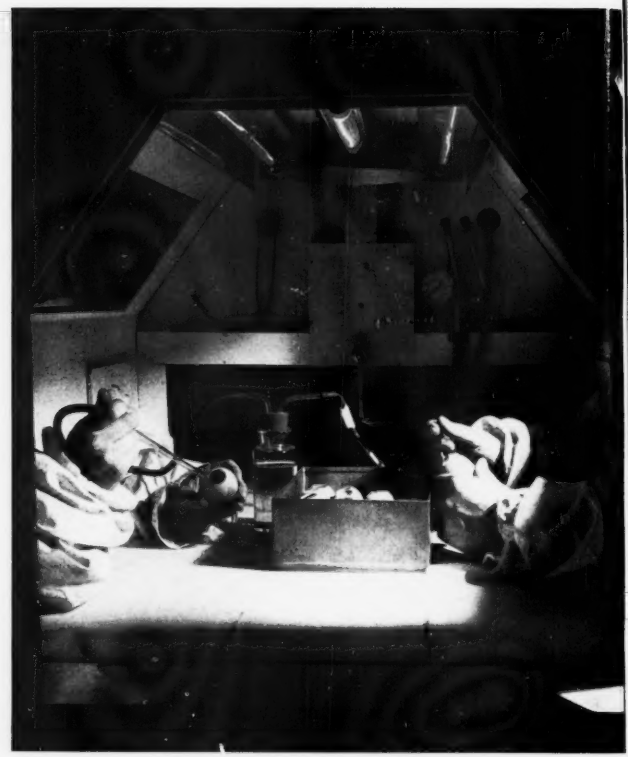

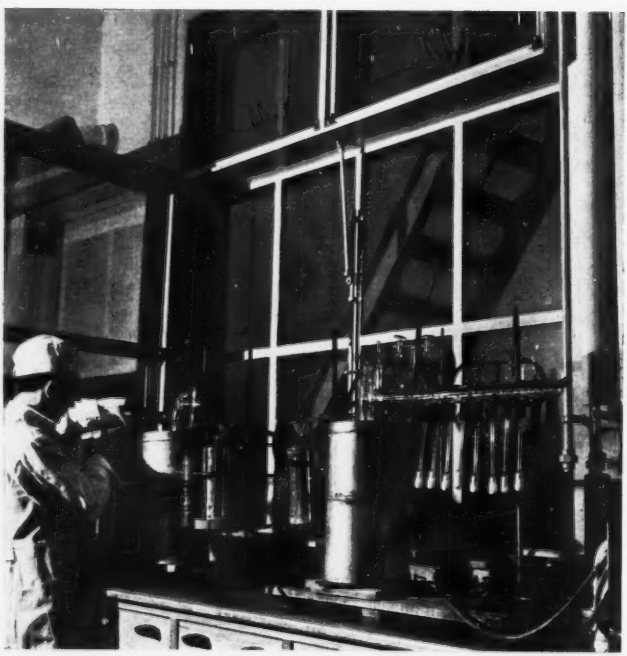

8 of carefully co-ordinated international collaboration, i.e., prompt identification of the virus, detection of epidemics in their early stages, early warnings to health authorities of impending danger, dispatch of freeze-dried virus samples (8) and specialist advice, and assistance in the training of technicians. These are the means which are now being employed in an attempt to limit the effects of pandemic influenza.

[1] Payne, A. M. - M. (1953) *Bull. Wld Hlth Org.*, 8, 756

Figs. 2a and 2b have been reproduced from: Stuart-Harris, C. H. (1953) *Influenza and other virus infections of the respiratory tract*, London, p. 87, by kind permission of Edward Arnold (Publishers) Ltd.

Reports of Expert Groups

MILK HYGIENE

Milk and milk products, if not produced under hygienic conditions, may lead to disease in the human consumers. Milk hygiene measures therefore embrace the health of milk-producing animals, sanitary practices in the production, handling and processing of milk and milk products, treatment for the destruction of pathogens in the milk, and protection against subsequent contamination of the product. In the first report of the Joint FAO/WHO Expert Committee on Milk Hygiene [1] attention is concentrated on hygiene problems relating to cow and buffalo milk and, to a lesser extent, to goat milk.

One of the major problems in milk hygiene stems from the broad range of local conditions throughout the world. The same general principles are basic to dairy hygiene the world over, but how these are applied must necessarily vary widely from one country to another. Countries still in the early stages of developing a milk programme find it difficult—if not impossible—to apply the hygiene practices utilized in the more advanced countries. The report accordingly places emphasis on simple, yet effective, measures, which will provide the maximum benefit to public health for the effort expended.

At the outset, it is stressed that there can be no assurance as to the safety of fluid milk and of many milk products without effective heat-treatment of the raw product and subsequent protection against contamination.

One of the important factors in clean milk production is protection from external contamination at the time and place of milking. On the farm, every effort should be made to avoid the introduction into the milk of micro-organisms or dirt in any form and to inculcate the idea that subsequent straining, filtering, refrigeration or heat treatment cannot be substituted for clean milk production. It is noted that high bacterial content in the raw milk may cause gastro-intestinal disturbances, even where the milk is subsequently treated to kill off the bacteria.

Diseases transmissible through milk

The diseases transmitted through milk may be divided into two broad categories : diseases of man for which animals may serve as a primary source of infection and diseases primary to man but which are transmissible through milk. The milk obtained under sanitary conditions from dairy animals in perfect health, while excellent for direct human consumption, is all too rare a commodity, because few herds of cows in any country of the world are always healthy and conditions of milking, from the hygienic standpoint, frequently leave much to be desired. The general principle of subjecting all milk destined for human consumption to adequate heat-treatment is therefore strongly recommended. In the past, milk has served as the vehicle both for epidemics and sporadic outbreaks of disease in man, but these have become relatively rare in countries where adequate heat-treatment is a basic principle in a well-established milk control programme.

The report goes on to discuss the major communicable diseases of man in the two broad categories mentioned above. Attention is drawn to the vexing problem caused by the use of antibiotics in the treatment and control of mastitis in milk-producing animals. Authorities differ on the harmful possibilities that may arise from the human consumption of milk containing low levels of antibiotics derived from this source. The dilution factor usually reduces the antibiotic content to very low levels and, as yet,

[1] *Wld Hlth Org. techn. Rep. Ser.*, 1957, **124**, 54 pages. Price: 3/6, $0.60, or Sw. fr. 2.—. Published in English, French, and Spanish.

specific and substantiated reports of subsequent difficulties arising in human beings are very rare. Nevertheless, it is recognized that in exceptional instances, disturbance may be caused in persons highly sensitive to antibiotics. It is therefore advocated that the milk from cattle treated with antibiotics by intramammary infusion should be excluded from the general supply for at least the first two milkings following therapy and, where possible, for a period of 48-72 hours thereafter. Where economic hardship would result from this second measure, the milk may be kept separate and used for purposes other than human consumption ; but it should on no account find its way into the manufacture of fermented milk products. The presence of antibiotics in such products can cause much difficulty. A number of measures for lessening the incidence of mastitis are set out in the report.

Supply and sale of milk

On the question of quality, it is noted that, in general, it costs the producer more in time, thought and money to deliver at all seasons of the year a milk of consistently high quality. It is therefore deemed just that the producer of high quality milk should receive a higher price per unit delivered and that milk of demonstrably poor quality should command a lower price than the ruling average. Furthermore, both in less well-developed and in advanced countries, payment on quality has proved to be a potent impulsion towards the production of better milk. The report describes in detail the working of one system of payment on quality that is now in use, and notes that this measure may be combined with payments on the basis of herd status (tuberculin-tested) and of compositional quality, as determined, for instance, by fat or total solids content.

With regard to different processes in preparing milk for human consumption, the report states that the value of pasteurization for the protection of human health is now amply established. No authenticated case of communicable disease has as yet been traced to milk properly pasteurized in the first instance and subsequently protected from recontamination. Sterilized milk has the advantage of prolonged keeping quality. Processing methods have been developed for producing a truly sterile milk by heating to temperatures of up to 150°C for a relatively short period of time. In hot climates especially, this form of milk has great utility.

Attention is drawn to the problem arising from the unhygienic practices of direct sale of milk from the farmer to the consumer and of milk retailing by itinerant pedlars. It is difficult in these operations to eliminate the sale of highly contaminated milk ; moreover, adulteration is very often a concomitant. These practices should, it is considered, be discouraged and eventually prohibited. In recognition of the difficulty of enforcing such prohibition in areas where demand exceeds supply, the report confines itself to recommending that, wherever control measures are easier to institute, as in large municipalities, direct sales of this kind be prohibited as soon as recognized suppliers are able to meet the needs. The argument that such sales mean a lower-priced product for the consumer is fallacious. A fraudulent retailer can always keep his price down by practising adulteration—and this often with dirty water—in the knowledge that he can do so with impunity over long periods of time, because of the difficulty of official supervision of such activities.

The practice of boiling milk, irrespective of whether it is in the raw or pasteurized state, is common in some countries. Where milk programmes develop satisfactorily, however, this unnecessary habit in the case of pasteurized milk tends to disappear. Nevertheless, wherever there is any doubt of the hygienic quality of any type of milk, the report advocates that it be boiled prior to consumption. After boiling, milk should be cooled and thereafter kept covered and cool, if not consumed immediately.

Milk hygiene legislation

Countries where the promulgation of milk hygiene legislation or regulations is

under consideration are reminded that the legislation adopted should be appropriate to the existing legal structure, the stages of development of the milk industry and milk hygiene practices, the economic status, and the major problems and public health needs of the country.

Regulations should be limited to essential public health requirements and should be so drafted as to provide for some degree of flexibility in compliance. Care should be taken not to adopt extreme measures, tending seriously to reduce the supply of milk needed for proper nutrition purposes and to result in premature displacement of traditional practices.

Then, too, education must precede the enforcement of legislation, since the latter will not, by itself, raise the level of milk hygiene. This can be achieved only through day-to-day application of hygiene measures by the dairy industry. Hence, milk producers and dairy personnel must understand the reasons underlying specific requirements, must be taught practical methods of compliance with these, and must be helped to solve their difficulties through advisory services. Experience in many countries has shown conclusively that an educational approach of this kind yields better results than police-type enforcement methods.

In some countries, the dairy industry itself has adopted measures designed to control milk quality and these may well have wider application. Industry activities of this nature can be a valuable adjunct to official milk hygiene programmes. The official agency should co-operate with the industry in the development and conduct of activities of this kind. The measures referred to involve: first, the establishment of field inspection and laboratory services for periodic inspection of producer farms and examination of milk samples taken at the point of collection, with a view to assisting the individual producer to improve the quality of his product; secondly, the fostering of monetary incentive systems for the production of high quality milk; and thirdly—since many milk producers need additional equipment and facilities in order to improve the milk quality—the provision of financial help so that needed improvements may be financed over a long period.

Other sections of the report deal with such matters as the health and cleanliness of milking staff; milking methods and their influence on udder health; the cleansing and bactericidal treatment of milking utensils and equipment and dairy plant; milk handling on the farm; milk collection and transportation, with special reference to protection against contamination and measures to maintain the keeping quality of the milk; testing for quality control and safety of the product; health control of dairy plant workers; milk hygiene in the home.

The report ends with a series of recommendations to FAO and WHO on future co-ordinated research in milk hygiene. The principles of official supervision of milk and milk products are discussed in an annex.

INSECTICIDE RESISTANCE

The diseases transmitted by arthropods, and in particular the insect-borne diseases, constitute one of the most important problems with which national health administrations are confronted. The initial results obtained with modern insecticides gave rise to the hope that most of these diseases could be successfully controlled, and even completely eradicated, within a more or less short period. However, the resistance to chlorinated hydrocarbon insecticides which has appeared in various vector species, has somewhat changed this outlook. Resistance, which has developed much more rapidly than the measures available to combat it, at present represents the main obstacle in the fight against arthropod-borne diseases. Thus the Expert Committee on Insecticides devoted its 7th session more particularly to a study of the present problem of resistance and to

pointing out the measures of an international nature called for.

Summarizing the present status of the question, the Committee's report [1] stresses that resistance is now universal in the housefly, that it is frequently found in the louse and that it has been reported in the case of various species of mosquito (*Anopheles*, *Aëdes aegypti*, *Culex*) as well as in at least 27 other insect species. An inquiry carried out by WHO with the aim of determining what research is under way on the resistance problem has shown the inadequacy of the work being undertaken in this field. The report indicates the broad outline of an international co-ordinated research programme on resistance, which should include in particular the collection and diffusion of information, the promotion of research, the increase of personnel and financial means devoted to this work, the adoption of standard test methods, the testing of new insecticides, the establishment of satisfactory liaison between research workers and laboratories, and the convening of meetings and conferences.

The report adopts, with certain amendments, the definition of resistance formulated during the Symposium on the Control of Insect Vectors of Disease,[2] held in Rome in 1953, and puts forward recommendations on the means to be used to detect and measure resistance. It discusses, in particular, the various applications of a standard test method, which would make it possible to obtain data on the appearance of resistant insect strains. It also mentions a certain number of problems, connected with the biological aspects of resistance, which should be studied without delay.

A second part of the report, devoted to the disinsectization of aircraft, contains revised specifications for aerosols and aerosol dispensers accompanied by a description of suitable test methods, as well as new recommendations concerning the method of carrying out disinsectization for quarantine purposes.

[1] *Wld. Hlth Org. techn. Rep. Ser.*, 1957, **125**, 31 pages. Price: 1/9, $0.30, or Sw.fr. 1.—. Published in English, French, and Spanish.

[2] See *Chron. Wld Hlth Org.*, 1954, **8**, 129, for the summary report of this Symposium, including the definition of resistance formulated. The papers presented at the Symposium were published and are available through the Fondazione Emanuele Paternò, Viale Regina Elena, 299, Rome. The papers are in either French or English, with summaries in these two languages and in German and Italian.

PUBLIC HEALTH LABORATORY METHODS

The Expert Committee on Health Laboratory Methods met in Geneva from 22 to 27 October 1956, and its first report has just been published.[1]

The Committee discussed in particular the role and organization of a public health laboratory service and paid special attention to laboratory problems as they affect underdeveloped countries, many of which are just starting laboratory work and are in need of expert advice.

It is now recognized that the potential value of public health laboratories in preventing and controlling infectious disease is so great as to render them indispensable, and that this value is most enhanced when the bacteriological work in the laboratory is closely linked to epidemiological work in the field. In the words of the report: " Epidemiology provided the original stimulus for the creation of public health laboratories, and it is epidemiology which in its turn is providing the laboratories with one of the chief means by which to assess the prevalence of disease and to bring it under control." However, before a public health laboratory service may be started in a less developed country, it is well first to obtain a clear picture of the nature and extent of the infections and the communicable diseases which will have to be combated. Ideally,

[1] *Wld Hlth Org. techn. Rep. Ser.*, 1957, **128**, 49 pages. Price: 3/6, $0.60, Sw.fr. 2.—. Published in English, French and Spanish.

epidemiological services should be developed in " symbiosis " with public health laboratory services, or even form part of them, to ensure as close collaboration as possible; but it may be found that there is so urgent a need for controlling a particular disease that a special campaign must first be undertaken. If circumstances permit, the laboratories serving this campaign may then be incorporated in the public health laboratory service.

In whatever way a public health laboratory is set up, its primary function will be to act as a service institution. " It is only one element or thread in the fabric of public health services and disease control, and it operates most effectively as the scientific and technical member of an integrated team that carries on a planned campaign against disease." Nevertheless, the Committee points out, some research should be encouraged as a secondary function. Many scientific problems of practical importance to the country will be encountered and will provide unequalled opportunities for special studies by an able and intellectually curious laboratory staff.

But, together with this, the Committee sounds a note of warning to those who would attempt too much. " In attempting to bring its public health laboratory services to a high degree of development by modern standards, the less developed country should not hope at one step to bridge the gap of many years represented by the advanced programmes in certain other countries. Although it will be possible in many instances to profit from their experience, to borrow concepts and techniques, and to shorten the developmental period to a significant extent, this borrowing should be done selectively, with care and discrimination. Sound planning should not expect to avoid altogether the pains and frustrations of slow evolution. The seedling of modern development cannot be successfully transplanted until the local soil is ready to receive it."

No attempt has been made in this report to give any definitive account of the structure and functions of a public health laboratory service, since these must inevitably vary according to the needs and circumstances of each country; but a variety of elements has been considered, including medical microbiology and serology, sanitary bacteriology, epidemiological investigations, preparation and distribution of diagnostic reagents and of prophylactic materials, and research. In the better developed countries the main organizational features of a public health laboratory service are generally the central laboratory, which acts as the parent institution and as the administrative headquarters; reference laboratories, each specializing in a particular branch of laboratory work; district laboratories, doing general work in a circumscribed area; mobile laboratories carrying out examinations of specimens which, for reasons of distance or difficulty of terrain, cannot well be sent to the district laboratory; and clinical side-rooms in which simple diagnostic tests may be made. While each of these elements should have its requisite degree of autonomy, the service should be organized " as a corporate elastic body, with the individual laboratories working together as part of an organic whole ".

The Committee also devoted much attention to the question of staffing, and laid great stress on the paramount importance of providing a well qualified technical staff in the earlier stages of development of a public health laboratory service. The heads of both central and district laboratories should be medically qualified; non-medical science graduates are most fitted for work in reference and research laboratories, where they are not called upon to act in a medical consultative capacity. Technical assistants should have at least a higher general primary education and should be given special supplementary training, for which various schemes are outlined in the report.

At the end of the report a brief description is given of the organization of public health laboratory services in Ceylon, England and Wales, the Federal Republic of Germany, France, Sweden, the Union of South Africa, the United States of America, and Yugoslavia.

Notes and News

Place of meeting of Eleventh World Health Assembly

The Director-General of the World Health Organization announces that he has reached agreement with the Government of the United States of America on Minneapolis (Minnesota) as the place of meeting of the Eleventh World Health Assembly and of the Special Tenth Anniversary Session that will precede it. These two meetings are to be held in May 1958.

In May of this year, the Tenth World Health Assembly accepted the invitation of the United States Government to hold the two 1958 sessions in the United States and the decision on the exact time and place was left to be agreed between the Director-General and the Government of the United States.

The United States Government and the City of Minneapolis have generously offered to meet the extra costs involved in holding the Assembly away from the WHO Headquarters at Geneva.

The Special Anniversary Session, which is to last for two days, is being held to celebrate the founding of the Organization in 1948. It was on 7 April of that year that the WHO Constitution was ratified by the twenty-sixth State Member of the United Nations and thus entered into force.

A special report reviewing all the activities of the Organization during the first ten years of its existence is to be submitted to the Eleventh Health Assembly.

WHO meeting on poliomyelitis

The WHO Expert Committee on Poliomyelitis met in Geneva from 15 to 20 July, 1957. Sir MacFarlane Burnet (Australia) was elected as Chairman and Dr V. D. Soloviev (USSR) and Dr J. H. S. Gear (Union of South Africa) as Vice-Chairman and Rapporteur respectively. The remaining members were: Dr H. Bernkopf (Israel), Dr H. K. Cowan (United Kingdom), Dr S. Gard (Sweden), Professor J. H. Hale (Singapore), Dr M. Kitaoka (Japan), Dr P. R. Lépine (France), Dr F. P. Nagler (Canada), Dr J. R. Paul (United States of America), Professor F. Przesmycki (Poland) and Dr A. B. Sabin (United States of America). Dr J. L. Melnick (United States of America) attended as a consultant.

The main task of this group of experts was: to review the experience gained in those countries where inactivated poliovirus vaccine (similar to the Salk vaccine) has been used on a large scale; to examine the problems of large-scale production and safety and potency testing of the vaccine; and to discuss the organization of vaccination programmes. The Committee was also to examine the prospects of using a live-virus vaccine.

The development of a vaccine effective against poliomyelitis has excited enormous interest in many countries throughout the world. But many difficulties and problems have arisen in regard to production, testing and administration.

A number of countries have asked for the guidance of the World Health Organization in developing programmes of polio control. Towards the end of 1955, WHO brought together in Stockholm a group of experts to review the situation as it then stood, following the confusion caused by the unfortunate incidents of the early large-scale vaccination campaigns.

The recommendations of the Stockholm group formed the basis on which many health authorities have developed their vaccination programmes. Since that time much more knowledge and experience have been accumulated, and the present Expert Committee was convened to consider the new

data, and to advise on its application to public health.

One of the most difficult problems is that of producing a safe vaccine that will remain consistently potent. Wide variations of potency are known to occur in the course of manufacture. It is clearly important to be able to reduce these variations and, as a means to that end, to develop satisfactory methods for the measuring of potency.

The Expert Committee was also asked to make recommendations on the appropriate moment for introducing vaccination programmes, having regard to the extent of the disease in any given country.

Since the first meeting of the Expert Committee on Poliomyelitis was called in 1953, WHO has developed a programme designed principally to assist Member States without adequate laboratory facilities to obtain the information needed before an immunization campaign can be properly planned. This need was met by designating, in each region, a specialized laboratory equipped and willing to carry out the necessary investigations. The directors of these laboratories were all invited to attend this latest meeting, where the work done was to be reviewed and recommendations made for improvement and further development of the WHO programme.

The Committee was also to review the progress made in developing an attenuated live-virus vaccine which might be capable of providing life-long immunity against polio. A vaccine of this kind would have the great advantage that it could be administered by mouth instead of by injection. At the present time live-virus vaccines are being used against smallpox and yellow fever.

The inclusion on its agenda of the question of diseases resembling poliomyelitis in that they produce symptoms of paralysis and encephalitis but which are not caused by the polio virus was a new departure for the Expert Committee.

The Committee's report will come before the Executive Board of WHO at its January 1958 session; if its publication is approved, it will be printed shortly thereafter in the *WHO Technical Reports Series*.

Air pollution

Public health authorities are becoming more and more conscious that the pollution of the atmosphere has an important bearing on the health and well-being of populations. It has long been recognized that smoke is a nuisance and has serious destructive effects on buildings due to the release of corrosive sulfur compounds in the combustion of coal. With the growth of industry, new health hazards have come into being—the release of arsenic in copper smelting, the discharge of nitrous oxides and the contamination of the air with lead, zinc and other poisonous fumes—all of which have given rise to grave concern for the health of the communities exposed. This trend towards treating air pollution as a public health problem was spurred on by the fatal episodes in the Meuse valley, Donora (USA) and London which brought to public attention in startling fashion the lethal effects of such toxic gases and fumes.

Air pollution can no longer be considered merely a nuisance ; nor can it be dealt with solely as a smoke abatement problem. Studies in England, the United States of America and parts of the Soviet Union reveal that, apart from the climatic effects of massive exposure, long-term insidious effects on human health may be caused by the continual presence of such contaminants as petroleum hydrocarbons and other gases commonly found in the air of cities. The possibility of damage arising from the pollution of the atmosphere with radioactive materials is also engaging the serious attention of health authorities.

Believing that the time has now come for international action on this problem, WHO is convening an Expert Committee on Air Pollution to meet in November of this year. The Committee will take up its work under four main headings : recognition and evaluation of air pollution, including meteorological and physiographical factors, the nature of air contaminants, sources of pollution, sampling and analysis; effects of air pollution on, *inter alia*, human health, plants, animals and economic and sociological conditions ;

air pollution administration, including legislation, standards and enforcements; the prevention and control of air pollution.

Automation and mental health

The trend towards automation that is rapidly gathering speed in more industrialized countries of the world has caused a chain reaction among the workers. Some regard the new automatic techniques in the light of a saviour, whereas others have become obsessed with irrational fears about the prospect of possible displacement. But whatever the sentiments aroused, the situation has created urgent problems in mental health, and WHO is taking action to study these.

For this purpose, it is calling together, in 1958, a group of mental health specialists drawn from countries of diverse cultures. The Study Group's task will be to examine the evidence on the effects of automation on mental health and suggest measures likely to be helpful in combating its harmful influences.

Within industry itself, automation has an immediate and far-reaching impact on employment, wages, working conditions, supervision, the conditions of mass work, and the whole nexus of human relationships within plant or office.

But while beginning in industry—like earlier technological revolutions—automation nevertheless profoundly affects the industrial communities as well, since the three-shift system characteristic of the automated factory necessarily entails a re-shuffling of community and family arrangements. Other institutions likewise feel its touch. Right from the start, the trade union movement in all countries has watched developments closely and has been quick to point to both the dangers and opportunities for labour that are implicit in automation. More recently, educators have begun to examine and discuss its meaning for them. Calling as it does for a host of new technical and intellectual skills, automation is making unexpected demands on the educational systems of most of the countries where it has taken root. Lastly, the governments of all these countries as well as of those where automation is anticipated are showing themselves alert to its possible repercussions on government itself, as a result of these direct impacts on various aspects of the population's life.

It is impossible to estimate how fast automation will progress and how far-reaching its ultimate impact will be. One certainty, however, is that this new technological development has a bearing on mental health, and it is with this aspect that the WHO study group will be concerned.

Centre for Authentic Chemical Substances

A Centre for Authentic Chemical Substances has been established at the Apotekens Kontrollaboratorium in Stockholm, in accordance with an agreement between the Apotekarsocieteten, Stockholm, and the World Health Organization. These arrangements are the outcome of recommendations of the Expert Committee on Biological Standardization in its sixth report [1] to the Expert Committee on the International Pharmacopoeia and of the latter Committee in its twelfth report.[2] The Centre is to collect, assay, store and distribute a restricted number of pure chemicals, for use for reference purposes by control laboratories.

The collection is to include mainly substances for which international biological standards have been provided in the past and which can now be characterized entirely by physico-chemical methods, and other chemicals required as reference standards in the fields of medicine and pharmacy, on the advice of the Expert Committee on the International Pharmacopoeia.

Eight authentic chemical substances are now available, some of which were handed over by the Medical Research Council, London; the others were acquired either through the co-operation of the United States Pharmacopoeia Reference Standards Office or purchased from commercial firms.

[1] *Wld Hlth Org. techn. Rep. Ser.*, 1953, **68**, Annex 3

[2] Unpublished document WHO/Pharm/266, paragraph 8

It is expected that the Centre will prove of value for control of pharmaceutical preparations and for purposes of pure research. It will operate for some time on an experimental basis and probably there will be no notable increase in the number of substances held until adequate information on its usefulness is available.

Laboratories and institutes working on a non-profit basis will not be charged either for the substances or for the costs of shipping. Commercial firms will be charged US $4.00, or the equivalent amount in other currencies, to help towards covering some of the costs incurred by the Centre. A charge will always be made for despatch by airmail.

The eight authentic chemical substances now available at the Centre are listed below, together with the unit and size. Most packages contain sufficient material for about 20 assays.

	Size
Chloramphenicol	300 mg
Digitoxoside	5 capsules of 10 mg
Ergometrine maleate	2 capsules of 10 mg
Melarsen	1 g
Oestrone	30 mg
Progesterone	65 mg
Tubocurarine	30 mg
Vitamin A Acetate (this is an oily solution of Vitamin A Acetate)	5 capsules of approximately 8.6 milligrams (0.344 micrograms of Vitamin A Acetate is equivalent to 1 International Unit—*Wld Hlth Org. techn. Rep. Ser.* 1950, 3, 4)

Orders should be sent and cheques made payable to: Centre for Authentic Chemical Substances, Apotekens Kontrollaboratorium, Lindhagensgatan 128, Stockholm, Sweden.

Yaws Eradication in Brazil

In October 1956 the Brazilian Ministry of Health started a campaign for the eradication of yaws, after five months of planning and preliminary work. The campaign is under the direction of Dr F. Nery-Guimarães, of the Ministry's National Department for Rural Endemics. Dr Guimarães was the first investigator in the Americas to apply penicillin in yaws; he is a member of the WHO Expert Panel on Venereal Infections and the Treponematoses.

Up to 30 April 1957—after seven months of field work—1 080 237 rural households had been surveyed and 4 422 156 persons had been examined in house-to-house investigations. A total of 374 792 persons suffering from yaws and 300 545 contacts had been treated with long-acting penicillin.

A seminar on yaws eradication was organized by the Pan American Sanitary Bureau (acting as the WHO Regional Office for the Americas) and the Government of Haiti in Port-au-Prince in October 1956.[1] Forty-eight public health administrators and treponematosis specialists in the Americas, including Brazil, participated. The progress made in the Brazilian yaws campaign since that time has been considerable. International assistance to the campaign from WHO and UNICEF has been granted at the request of the Brazilian Government. At its session in April 1957 the UNICEF Executive Board voted $199 500 for provision of transport, equipment and supplies for this project.

Forthcoming Study Group on Ataractic and Hallucinogenic Drugs in Psychiatry

It is becoming necessary to obtain a balanced and critical international appraisal of experience in the rapidly expanding use in psychiatry of certain drugs currently known as " tranquillizers ", " narcobiotics ", " psychosomimetics " or " ataraxics ". The antagonism of these drugs to substances such as mescaline and LSD-25 that produce " model psychoses " raises important questions in clinical psychiatry, particularly from the point of view of the understanding of the physiological mechanisms involved in psychiatric disorders.

To study these problems, WHO is convening a group of experts who will meet from 4 to 9 November 1957 in Geneva. Since a number of large-scale seminars and conferences have already been devoted to exchange of information on the use of these

[1] See *Chron. Wld Hlth Org.* 1957, 11, 72-73.

drugs, the WHO study group's task will be limited to a critical review of present knowledge, with particular reference to the theoretical significance of the action and interaction of the drugs, their indications and contra-indications in treatment and the effects of their use on the functioning of the mental hospital. The group will also consider a suitable design for possible large-scale studies in different countries and cultures.

Expert Committee on the Public Health Aspects of Water Fluoridation

WHO brought together in Geneva, from 26 to 30 August 1957, a group of seven experts on water fluoridation, whose task was to discuss the public health aspects of fluoridation and to submit a report on the subject.

Among the main topics discussed by the Expert Committee were the dental effects of fluoride where found naturally in water and where added; the action of fluoride on tooth structure; the safety of water fluoridation as related to water handling, the metabolism of fluoride; methods of adding fluorides to water and the fluoride compounds used; the acceptance of water fluoridation by professional and public groups throughout the world.

The Expert Committee was made up of the following seven members: Professor Y. Ericsson (Stockholm), Dr Jean R. Forrest (London), Dr Paulo da Silva Freire (Rio de Janeiro), Professor A. J. Held (Geneva), Professor Harold C. Hodge (Rochester, USA) Dr John W. Knutson (Washington) and Professor K. L. Shourie (Bombay).

Co-ordinated work of FAO and WHO on Brucellosis

The importance of brucellosis as a world problem is essentially twofold: first, from the public health standpoint, by reason of the illness, physical incapacity and loss of manpower caused by the transmission of the disease from infected animals to man; and, secondly, from the economic standpoint, by the loss to the animal industry entailed by the occurrence of the disease in animals. The latter is interlinked again with public health because of the serious diminution of needed foodstuffs, especially animal protein, accompanying the financial loss.

In recent years considerable progress has been recorded in a number of countries in the control of animal brucellosis. But the disease in sheep and goats still remains one of the largest single public health problems of the zoonoses type in the Latin American, Mediterranean and Middle Eastern countries.

The control of brucellosis in sheep and goats will therefore be one of the major topics for study by the FAO/WHO Expert Committee on Brucellosis when it meets for its third session in Lima, Peru, from 9 to 14 October 1957.

In the interval since the Expert Committee last met in 1952, FAO and WHO instituted a programme of co-ordinated research, covering the pathogenesis of brucellosis in sheep and goats, its diagnosis, and the development of a vaccine for field use. The results of these studies, which were undertaken by the Veterinary Laboratory of the Ministry of Fisheries and Agriculture, Weybridge, England, the Pasteur Institute of Tunis and the Department of Bacteriology of the University of California, USA (the two first-named act as FAO/WHO Brucellosis Centres), are also to be examined by the Expert Committee.

Also to be discussed are: advances in laboratory diagnosis of brucellosis in man and animals; the therapy of human brucellosis; the use of vaccines for the prevention of brucellosis in humans; advances in the control of brucellosis in animals; the bacteriology and typing of *Brucella*; and the work of the FAO/WHO Brucellosis Centres.

The members of the Committee will be: Dr M. Ruiz Castañeda (Mexico), Sir Weldon Dalrymple-Champneys (United Kingdom), Dr S. S. Elberg (United States of America), Dr C. A. Manthei (United States of America), Dr G. Renoux (Tunisia), Dr W. W. Spink (United States of America), and Dr A. W. Stableforth (United Kingdom).

The meeting will be preceded by the Fourth

Inter-American Congress on Brucellosis which is also being held in Lima, from 6 to 8 October 1957.

The Pan American Sanitary Bureau, WHO Regional Office for the Americas, is arranging a short training course in the public health aspects of brucellosis and the control of the disease in animals, intended for public health officials of the Latin American countries; this course will take place immediately prior to the two meetings mentioned.

Data Sheets on Food Colours

Food colourings have been given first priority in WHO's efforts to collect information on the physical, chemical, pharmacological and other biological properties of individual food additives. WHO has assumed this responsibility, with the participation of FAO, because the legislation of the various countries on food additives shows wide divergences and the size of the problem makes it impossible for any one individual country to undertake all the investigations needed.

The information on food colourings gathered by WHO from all over the world has been incorporated in data sheets and the contents have recently been revised to take account of the comments and suggestions of WHO Member Governments. The revised version is expected to be ready for distribution early in September 1957. It contains information in respect of 20 natural and 115 synthetic colouring materials—all of which, with one exception, are already in use or have recently been recommended for use in foodstuffs—including alternative and chemical names, chemical and physical properties, specifications, and summaries of toxicity investigations published since 1930. The individual data sheets also list the countries permitting the use of the material in question and the whole is completed by a table listing all the colourings and the countries in which each one may be used.

This document may be obtained by application to the Section on Health Laboratory Methods, World Health Organization, Geneva.

Study Group on Schizophrenia

The frequency of schizophrenia makes it the most important of the public health problems in psychiatry. All aspects of this disease —forms, causes, treatment procedures and preventive measures—were examined by a number of experts brought together by WHO early in September of this year. The latest information available was put at the group's disposal and it is hoped that its report will clarify in what way WHO can be of assistance in seeking better answers to the manifold and as yet unsolved problems facing public health authorities.

The meeting took place in Geneva and followed the Second International Congress on Psychiatry, the main topic of which was also schizophrenia; most of the participants in the WHO group first attended this Congress.

The following took part: Professor W. von Baeyer (Federal Republic of Germany), Dr J. A. Böök (Sweden), Professor Honorio Delgado (Peru), Professor M. Gozzano (Italy), Dr Ernest Gruenberg (United States of America), Dr Nathan Kline (United States of America), Dr T. A. Lambo (Nigeria), Professor Aubrey Lewis (United Kingdom), Dr Chr. Muller (Switzerland), Dr P. Ratanakorn (Thailand), Professor Martin Roth (United Kingdom), and Dr P. M. Yap (Hong Kong).

Help to Hungary in threatened poliomyelitis epidemic

According to information communicated to WHO, the number of poliomyelitis cases recorded in Hungary in the first half of this year was three times higher than in preceding years. This rise, coming before the start of the usual polio season, led to the anticipation of a possibly extensive epidemic against which urgent measures were necessary.

The World Health Organization, at the request of the Hungarian Minister of Health, took immediate steps, through its Regional

Office for the Americas (Pan American Sanitary Bureau), to obtain an export licence for Salk vaccine from the United States Government and a quantity of the vaccine sufficient to give 29 000 inoculations was delivered in Budapest late in July.

WHO also collaborated with the Hungarian authorities in drawing up a plan for the vaccination programme. In order that the maximum benefit might be obtained from the use of the vaccine, immunization was to be carried out in areas where the disease had not become widespread but where the epidemic might be expected to take root.

In the epidemic years of 1947, 1954 and 1956, the number of polio cases in Hungary rose from the usual level of 100-300 to as many as 1000-1200, children under five years of age accounting for the majority.

Gamma globulin production in Poland

Some 80 000 cases of measles are reported annually in Poland. Outbreaks of this disease and of infectious hepatitis are common in day nurseries and other children's institutions and the country's present production of gamma globulin is still inadequate to combat these epidemics effectively.

A plan has been worked out and is now being put into operation by the Polish Government to double the present output—25-35 kg annually—by putting into production a new laboratory at Lublin. In this project, UNICEF is to supply equipment which cannot be readily obtained in Poland and WHO is providing technical advice, as well as fellowships for two Polish research and production chemists to study abroad.

Public health laboratories in Indonesia

The Government of Indonesia has adopted a comprehensive plan to modernize the country's public health laboratories and improve the existing facilities for training of laboratory technical staff.

In carrying out the plan, the Government will have the co-operation of WHO. The funds allocated by WHO will be used to provide supplies and equipment to the Central Public Health Laboratory in Djakarta and the five provincial laboratories in Medan, Semarang, Jogjakarta, Surabaja and Makasar. The project will be conducted under the sole responsibility of the Government, with technical advice and guidance from WHO.

People and Places

Appointment of malaria eradication director

In view of the need for WHO to concentrate for some time to come on work on malaria eradication, the Director-General has decided that, as from 1 July 1957, there will be a director of malaria eradication within the Headquarters Department of Advisory Services.

Dr E. J. Pampana, who has been Chief of the Malaria Section of the Division of Communicable Diseases for a number of years past, has been appointed to this post. He will be responsible to the Assistant Director-General for advising on malaria eradication policies and techniques, and for stimulating, co-ordinating and directing the Organization's activities in this sphere. The Malaria Section will, from the same date, become responsible to him directly.

Organizational changes

The Division of External Relations and Technical Assistance at WHO Headquarters in Geneva has been disestablished with effect from 12 July 1957.

Those of the Division's functions concerned with the Expanded Programme of Technical Assistance have been transferred to the Department of Advisory Services. Two additional Offices have been created within the Department of Advisory Services with broad functions regarding respectively the co-ordination of the Department's programme of work and evaluation of WHO activities.

Dr O. Leroux is serving as Chief of the Office of Programme Co-ordination, in addition to his responsibilities as Assistant to the Assistant Director-General in charge of the Department of Advisory Services, and Dr A. Macchiavello has taken charge of the Office of Programme Evaluation.

The functions of the disestablished Division concerning external relations remain the responsibility

of the Office of the Director-General and are being exercised through a newly established Office of External Relations. Mr Paul Bertrand is Chief of this Office.

WHO Headquarters

Dr René Sansonnens, of Switzerland, took up duty on 15 July 1957 as Chief of the Section on Health Laboratory Methods of the WHO Headquarters Central Technical Services. He succeeds Dr G. Löfstrom, who has returned to his native country, Sweden, on completion of his service with WHO, to resume his former post of Professor of Bacteriology at the University of Uppsala.

Dr Sansonnens, after his earlier studies in medicine, specialized in bacteriology, tropical medicine and public health by extensive study both at home and abroad. Prior to joining the WHO staff, he was Assistant Technical Director of the Swiss Vaccine and Serum Institute, Berne.

Dr R. A. Chapman, who has been responsible for WHO's work on food additives since the start of the joint FAO/WHO programme in 1955, left the WHO staff on 19 July 1957. He is returning to his former position as Head of the Food Chemistry Section, Food and Drug Directorate, Ottawa, Canada.

Dr Chapman has been succeeded by Dr Isaac Nir-Grosfeld, of Jerusalem, who was previously Director of the Israel Government Institute for Standardization and Control of Pharmaceuticals—a post he had held since 1944, and in which he had a wide responsibility, under the Ministry of Health, in respect of food additives and the standardization of food products. Dr Nir-Grosfeld took up his new duties in Geneva on 1 August 1957.

Anaemia studies in Mauritius

Miss Dorothy Miley, of Ireland, has recently arrived in the Island of Mauritius, to take up her duties as non-medical nutritionist on the WHO team that is already there. This team—whose complement is now complete with the arrival of Miss Miley—was sent out in 1956 in response to the request of the Government of Mauritius, for the purpose of studying anaemia—one of the island's most important health problems. Dr G. Stott, the team haematologist, has already carried out a number of surveys and special studies with a view to establishing the etiology of the more prevalent types of anaemia found in the island. Miss Miley's main task will be to study the characteristics of the diet and, in collaboration with Dr Stott, the relationship between food intake and types of anaemia.

Appointment of consultant on automation

WHO has secured the services of Mr Charles R. Walker, Senior Research Fellow of Yale University, USA, to help its Mental Health Section in the preparatory work for the forthcoming meeting to study the effects of automation on mental health (see above).

As a director of research at Yale's Institute of Human Relations, Mr Walker has studied the impact of technological change on human behaviour over the past 10 years. He is a former President of the Society for Applied Anthropology.

Mental health work in Bangalore

In 1954 the Government of India established an All-India Institute of Mental Health in the town of Bangalore in southern India, to provide post-graduate training for doctors and nurses and to carry out research in mental health problems in the area. WHO assisted in the work leading up to the foundation of the Institute by sending, in the latter part of 1951, a consultant to give the Indian Government expert advice on the development of the existing mental hospital and help in the setting up of the training institute. Since the opening of the Institute, WHO has provided two psychiatric nursing tutors and a specialist in electro-physiology to assist in the training programme.

More recently, the Organization appointed a consultant psychiatrist, Dr D. M. Leiberman of the United Kingdom, who was due to start work in the Institute on 1 June 1957. He will be primarily responsible for the neurological and electroencephalographic work but will take part, too, in the clinical and teaching activities. Dr Leiberman, who has had previous Indian experience, studied electroencephalography at Dr Denis Hill's laboratory in the Maudsley Hospital in England and worked on neurology during the Second World War. He has been given special leave of absence from the South-East Metropolitan Regional Hospital Board in London.

Teaching of public health in the Philippines

Two new appointments have recently been made under the three-cornered agreement between the Government of the Philippines, the Johns Hopkins University, Baltimore, USA, and the World Health Organization, which came into operation in 1953 with the primary object of strengthening the teaching of public health in the Institute of Hygiene of the University of the Philippines, Manila.

Dr Ruth A. Davis, an instructor in maternal and child health, and Dr Paul A. Harper, Professor of

Public Health Administration, both faculty members of the Johns Hopkins School of Hygiene and Public Health, have been seconded from their posts for tours of duty in Manila, the former for one year and the latter for three months. Dr Harper has been teaching at the Johns Hopkins School since 1947. Dr Davis served first as an assistant at the Babies Hospital of the Presbyterian Medical Center, New York, subsequently taking up her teaching post at the Johns Hopkins School in October 1956.

Study of food practices in Middle East and South Europe

Dr Walter L. Mallman, Professor of Bacteriology and Applied Microbiology at Michigan State University, USA, is to undertake on behalf of WHO a three months' study of food practices in Iran, Turkey and Yugoslavia, starting in August 1957, with the primary object of gathering the material for a simple manual of ways and means for raising standards of food hygiene. The study will cover food-borne diseases; legislation on, organization of and supervision of food hygiene; and common food practices having a bearing on hygiene.

Dr Mallman took his B.Sc. and M.Sc. degrees at Michigan State University—an institution with which he has been continually connected since 1918, apart from periods of post-graduate study—and his Ph. D. at the University of Chicago. Although his major interest lies in food hygiene, Dr Mallman has won an international reputation in other aspects of environmental sanitation, including water supply and sewage biology.

Tonga Islands—social anthropologist appointment

An investigation of local customs and practices having a bearing on hygiene and sanitation of the environment is to be carried out in the Tonga Islands, starting in September 1957, by Mr James Spillius, of Canada. He will be working as a member of a WHO team of public health experts that is to advise and assist the government of the islands in how best to conduct its health education programme. Mr Spillius' duties will be to investigate the cultural, social and other related customs of the Tongan people connected with personal hygiene, living habits and sanitation of the family group environment.

The Tonga Islands, a British protectorate with an estimated population of 60 000, are situated in the Pacific Ocean east of Australia.

Mr Spillius, who has had a lengthy experience of social anthropology, already has some knowledge of Tongan customs and habits. Prior to taking up this appointment, he will be completing his thesis for a Ph.D. degree at the London School of Economics.

WHO entomology consultant

Dr Robert L. Metcalf is at present engaged in visiting Italy, Egypt, Israel and Lebanon on behalf of WHO for the purpose mainly of advising the governments of these countries on the use of organophosphorus compounds in house-fly control. He will be giving particular attention to the possibility of the house-fly developing a resistance to these substances.

Dr Metcalf is Professor of Entomology at the University of California, and Head of the Entomology Department at the Citrus Experiment Station, Riverside, California; he is widely known as an authority on insecticides.

Appointment of Visiting Professor of Health Education, India

Dr Elizabeth Kelley, of the USA, has recently been appointed as visiting Professor of Health Education at the All-India Institute for Hygiene and Public Health, Calcutta. She is to carry on the work begun by Dr Morey Fields in his two years' service in this post.

This appointment is in line with WHO's policy of working for the strengthening of national institutes of public health, so that training for leadership in national public health programmes may be carried out in the country of work instead of having to be taken abroad where conditions may be dissimilar.

Dr Kelley has already served WHO in a similar capacity, at the School of Public Health of the University of Malaya, Singapore, from 1952 to 1954. Her recent work in her own country has been concerned with activities designed to improve school and community health programmes through co-ordination of the efforts of official health agencies and voluntary and other community groups.

Mental Health Consultant

WHO recently called on the services of Dr J. J. Elkes, Professor of Experimental Psychiatry at Birmingham University, England, to assist in its preparatory work for the meeting of a Study Group on Ataractic and Hallucinogenic Drugs, which is to take place in November of this year (see above).

Dr Elkes will be leaving his present post later this year, to take up a new appointment as Chief of the Clinical Neuropharmacology Research Center of the National Institutes of Mental Health, Bethesda, Maryland, U.S.A.